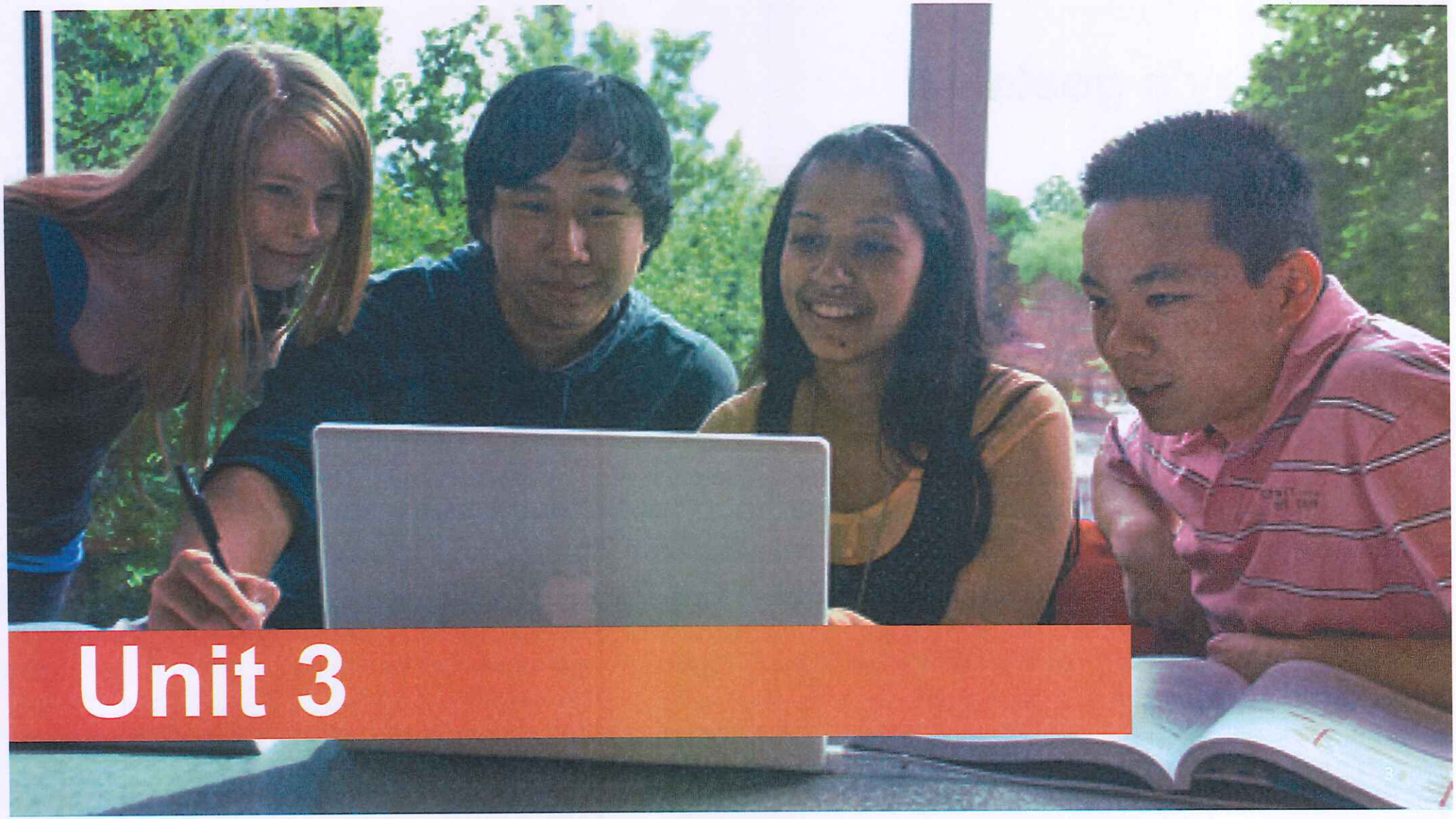


Unit 3

Today's goals

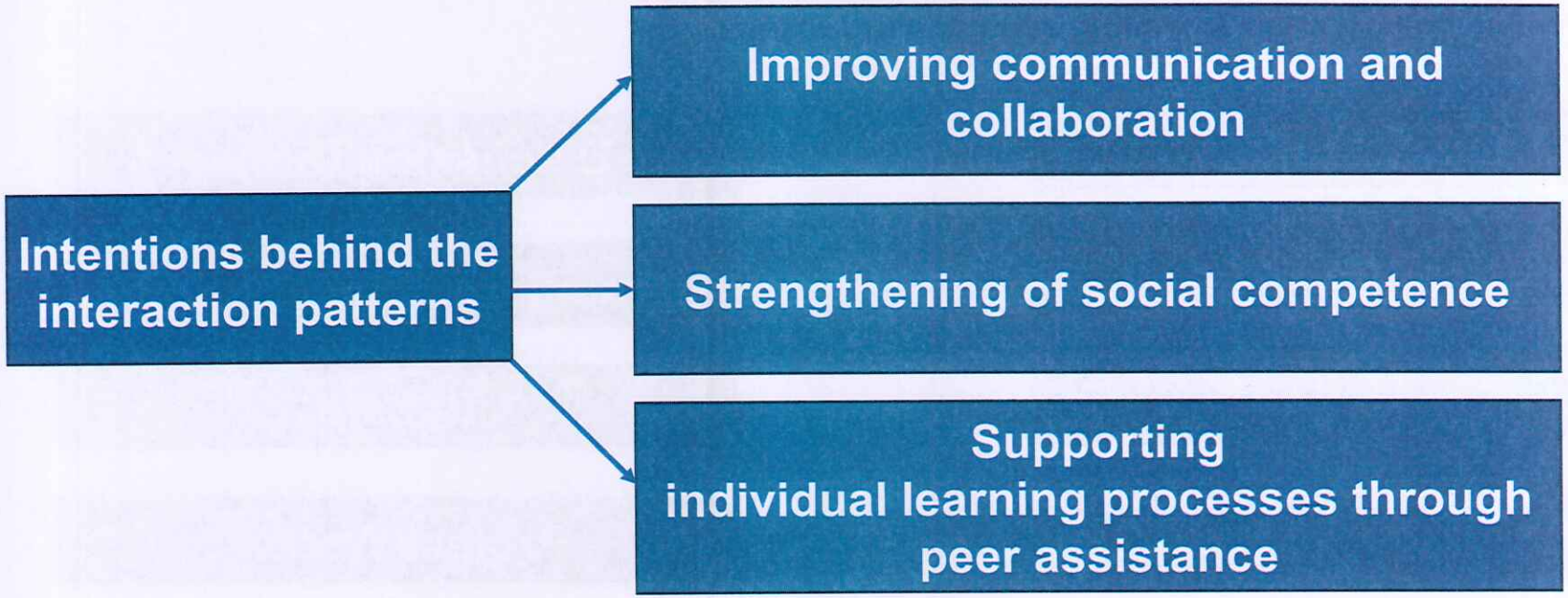
- **Compare** interaction patterns
- **Analyse** your teacher questions
- **Discribe** according to didactic reduction
- **Evaluate** with a mastery test

Steps of today's lesson

- Comparing different interaction patterns
- Teacher questions and why this topic is important
- Lots of material, little time
- Solutions for didactic reduction
- Sieves of reduction and priority check
- Mastery test

Interaction patterns

Interaction patterns



Overview of Interaction Patterns

- Individual Work
- Pair Work
- Group work
- Whole-Class Discussion
- Discussion Circles
- Learning Stations / Rotations
- Debate
- Project Work

Task 1

Individual Work	Discussion Circles
Pair Work	Learning Stations / Rotations
Group work	Debate
Whole-Class Discussion	Project Work

Task: The 8 social forms are used to test your previous knowledge.
Please make 3 columns on a sheet of paper or on your laptop. In the first column, write the social form. The second column lists possible advantages and the third column possible disadvantages.
It is not a problem if you cannot solve some of the following tasks. The less you know, the more new things you will learn today.

Interaction pattern: Individual work
Place: Classroom
Resources: Note paper or laptop
Product: Keywords
Time: 30 minutes
Note: *You could easily find the answers online. But this will reduce your learning effect.* **Please work with or without your OWN prior knowledge!**

Task 2

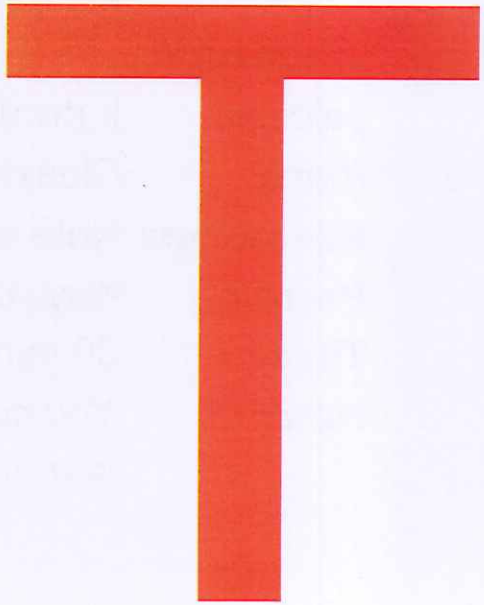
Task: Please compare step by step your notes with the descriptions on the following slides.

Place: Classroom

Resources: Note paper or laptop

Product: None, because you are simply comparing one solution with another.
You will receive the slides as a handout.

Time: 10-15 minutes



Joint review, step by step

It's just ...

... to gain confidence in the characterization of interaction patterns in the classroom.

... to compare what you have already found out through your reflections.

Individual Work

Advantages

- Promotes individual concentration
- Encourages independent learning
- Easy to differentiate

Disadvantages

- Lack of social interaction
- No peer exchange opportunities

Pair Work

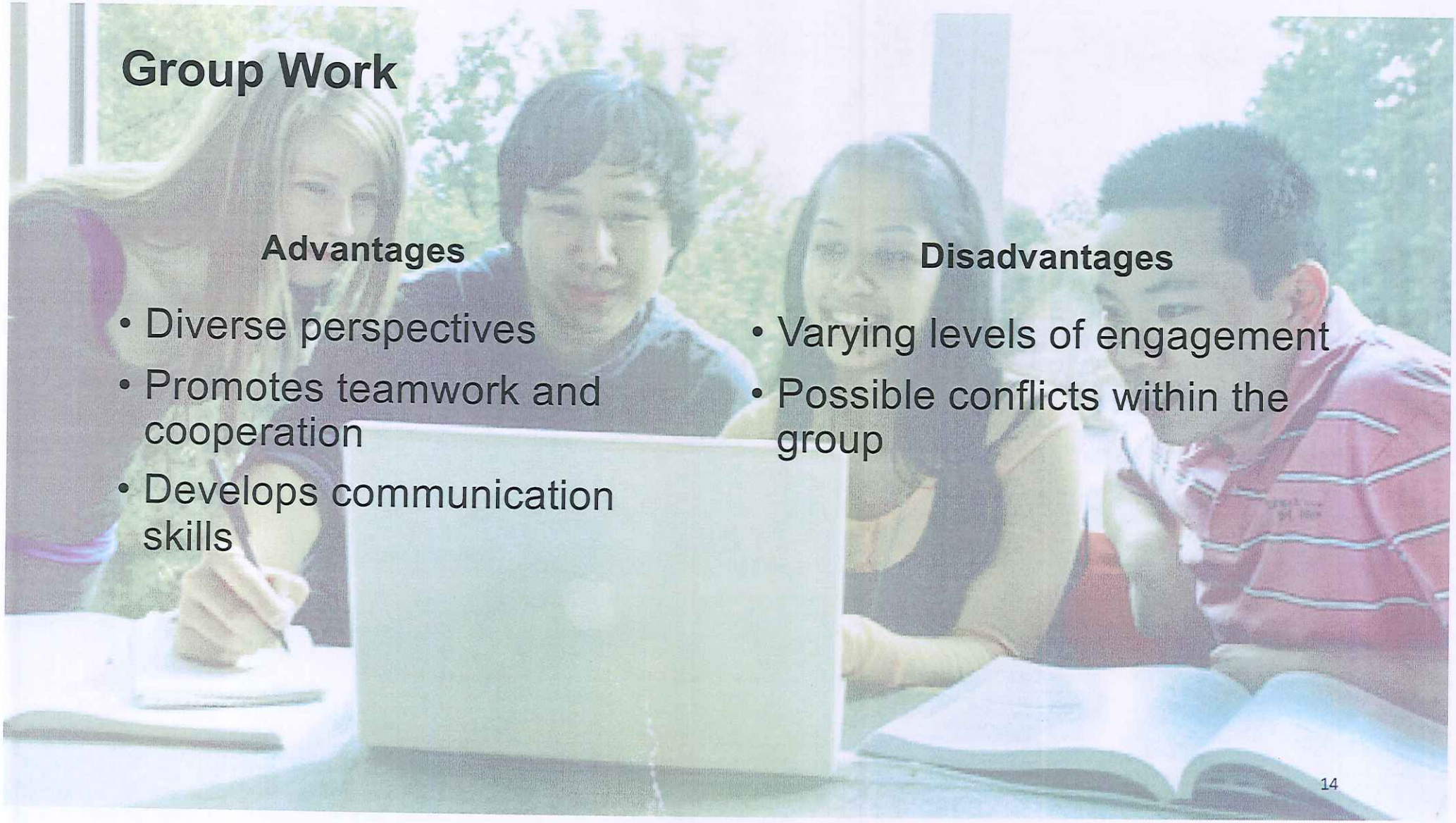
Advantages

- Intense exchange
- Enhances social skills
- Mutual support

Disadvantages

- Dependence on partner
- Potential dominance of one partner

Group Work



Advantages

- Diverse perspectives
- Promotes teamwork and cooperation
- Develops communication skills

Disadvantages

- Varying levels of engagement
- Possible conflicts within the group

Whole-Class Discussion

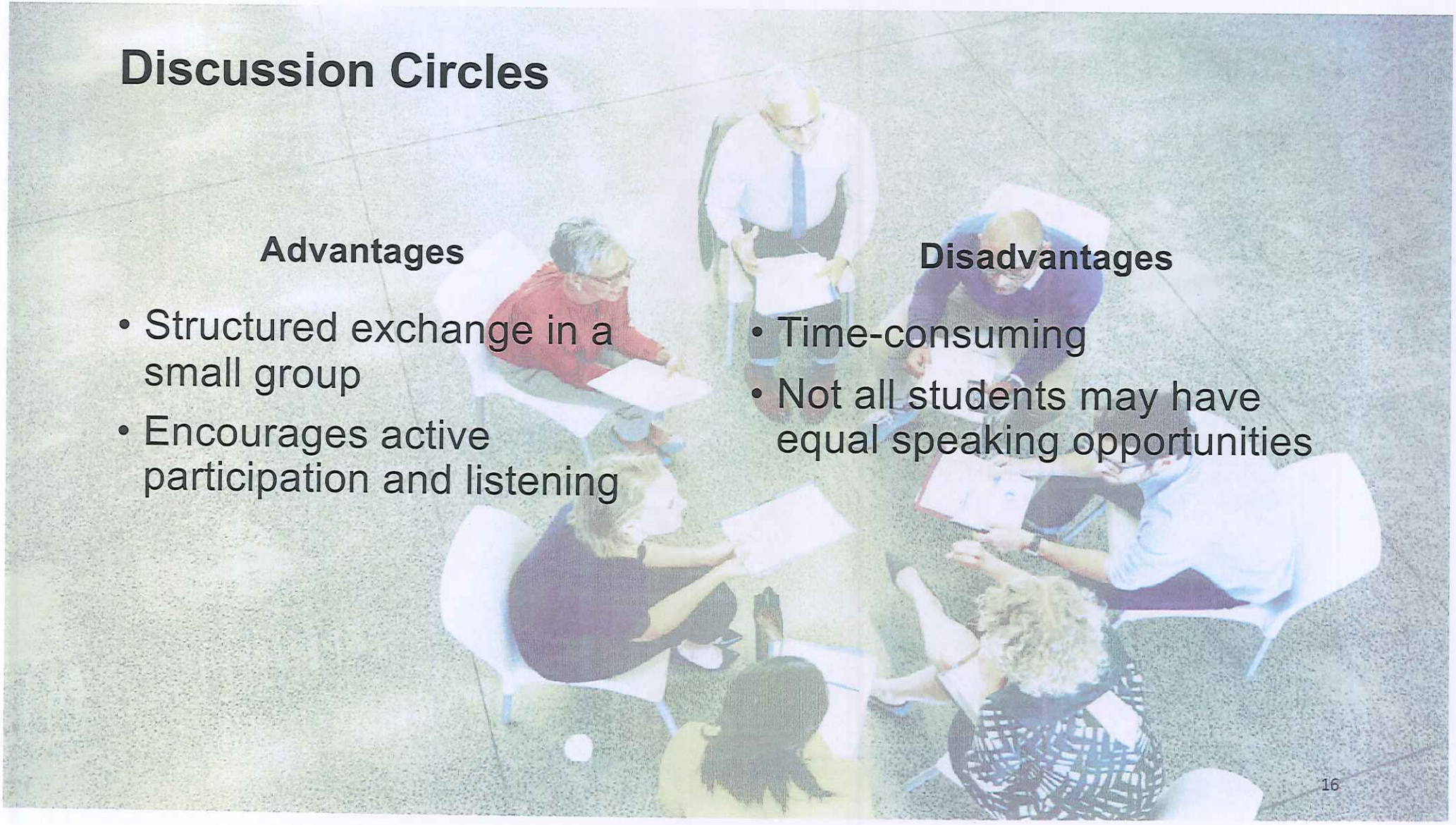
Advantages

- Exchange of ideas with the entire class
- Develops public speaking and argumentation skills

Disadvantages

- Lower participation from some students
- Risk of teacher monologues

Discussion Circles



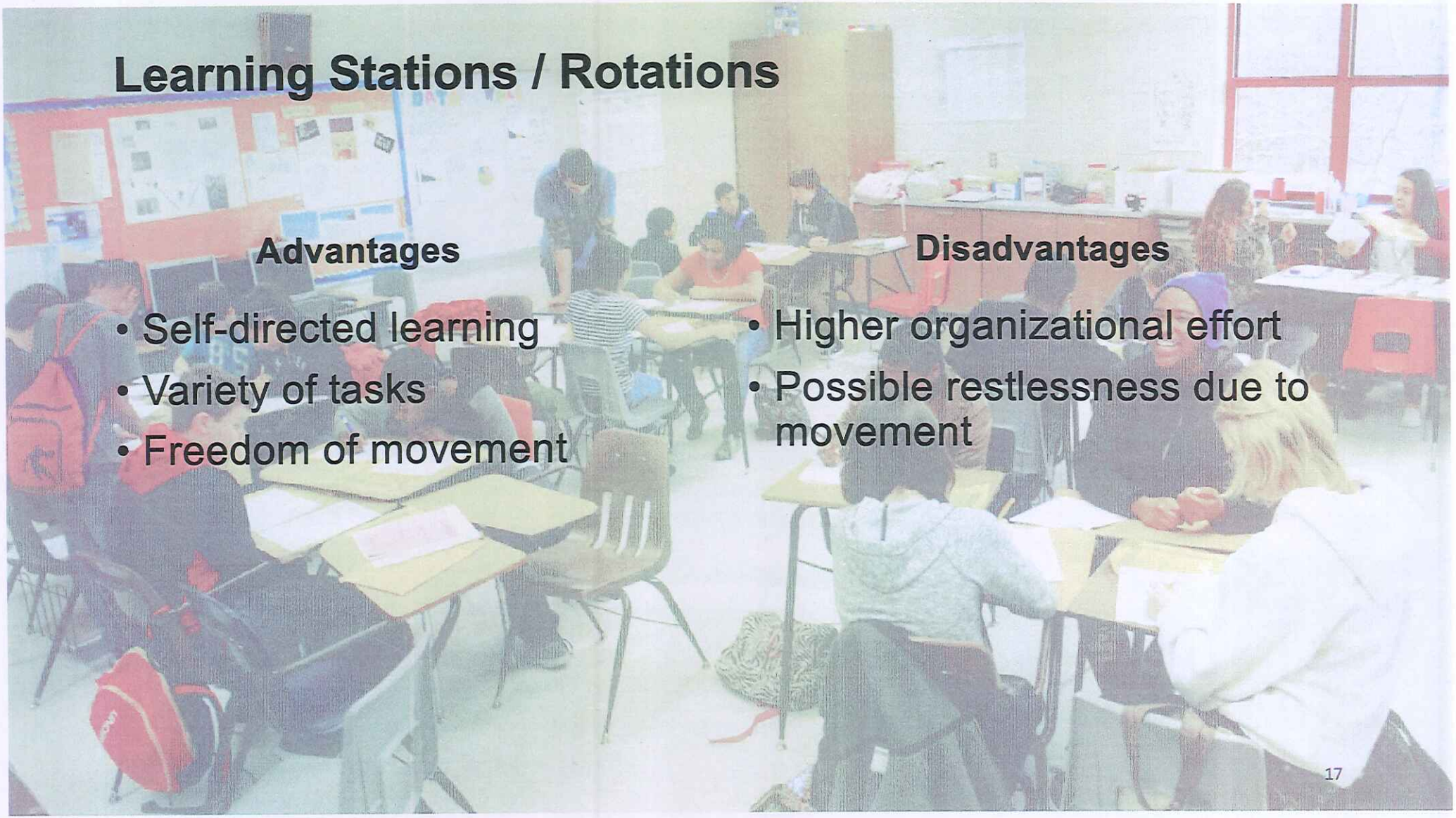
Advantages

- Structured exchange in a small group
- Encourages active participation and listening

Disadvantages

- Time-consuming
- Not all students may have equal speaking opportunities

Learning Stations / Rotations



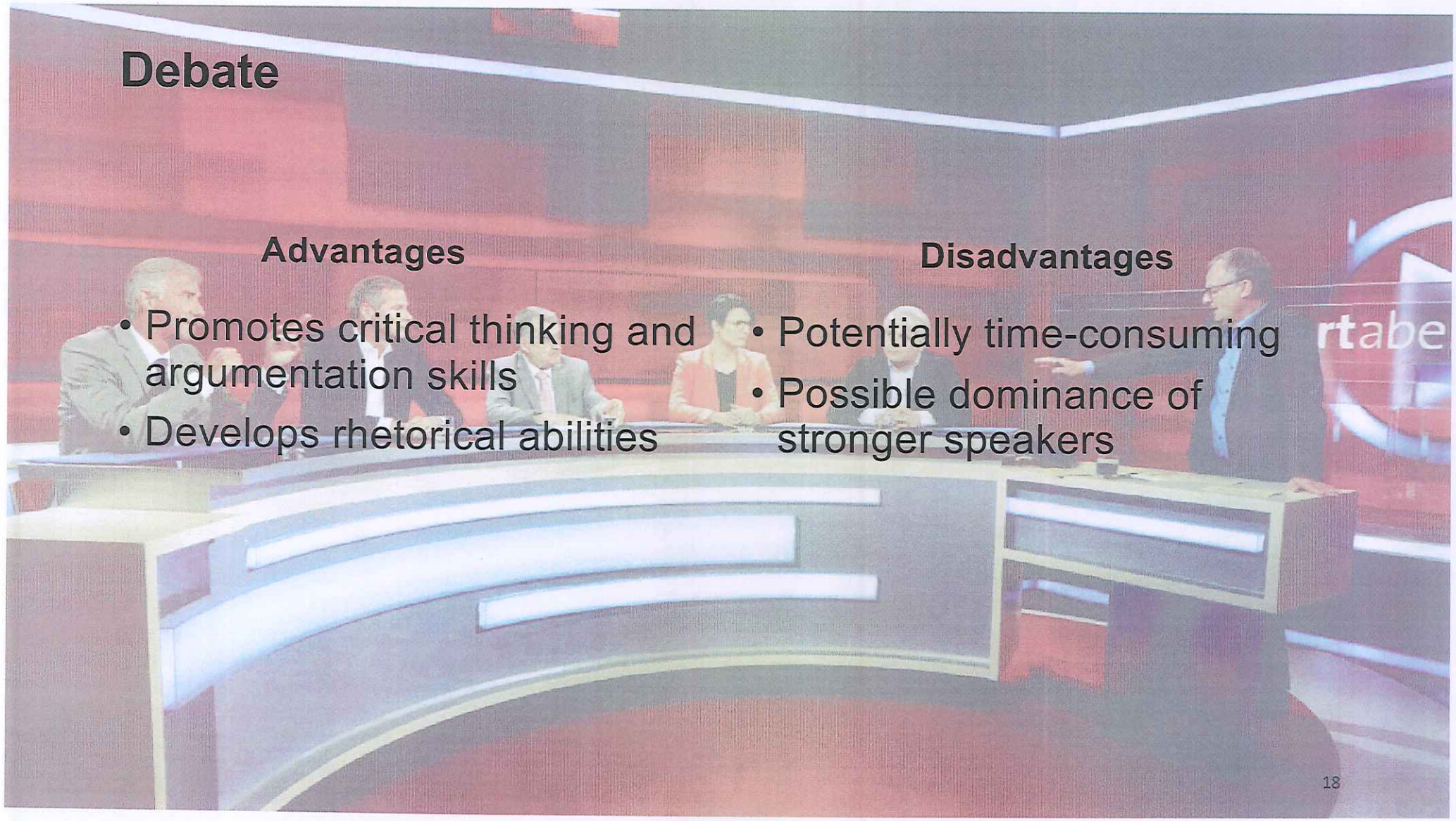
Advantages

- Self-directed learning
- Variety of tasks
- Freedom of movement

Disadvantages

- Higher organizational effort
- Possible restlessness due to movement

Debate



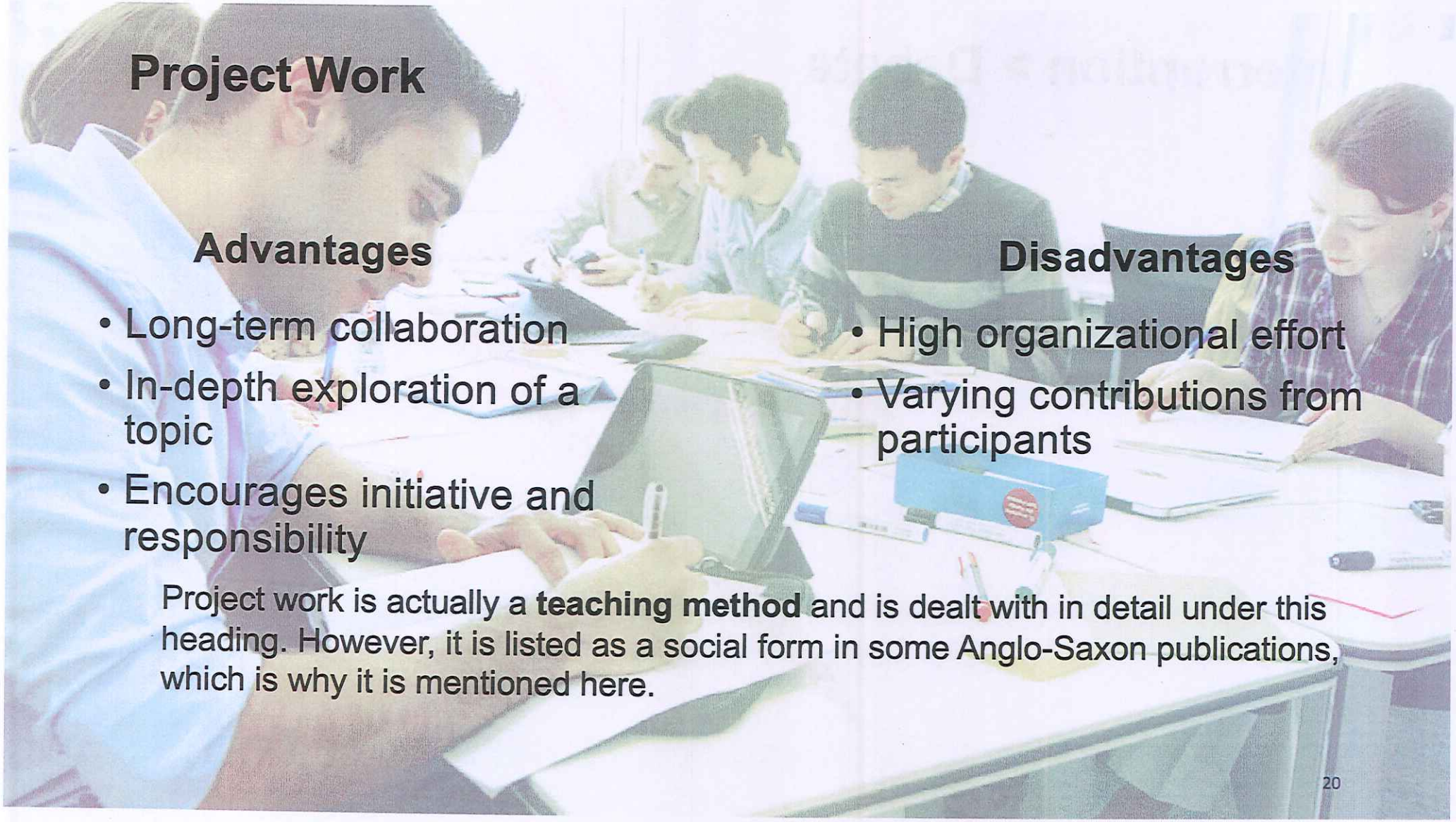
Advantages

- Promotes critical thinking and argumentation skills
- Develops rhetorical abilities

Disadvantages

- Potentially time-consuming
- Possible dominance of stronger speakers

Interruption > Debate



Project Work

Advantages

- Long-term collaboration
- In-depth exploration of a topic
- Encourages initiative and responsibility

Disadvantages

- High organizational effort
- Varying contributions from participants

Project work is actually a **teaching method** and is dealt with in detail under this heading. However, it is listed as a social form in some Anglo-Saxon publications, which is why it is mentioned here.

time

4 questions!

Teacher questions

Why is this topic important?

1

Teachers ask

300 to 400 questions **per day** or approximately 2 million questions in an average teaching career [1)]

2

60-70% of the questions asked by teachers in class are so-called "display questions"

3

According to numerous studies, the ratio between teacher questions and student questions is 10 to 1

Increase the effect by asking questions

Adjunct questions

These are questions that appear in a text during the knowledge transfer or questions that are distributed during the lecture.

> Students **have time** to work on them

> Questions are **not** asked **at the end** of the learning process

Task 3

Task: You have heard an input about studies on teacher questions.

With “Adjunct questions” you have received initial tips on how to increase the effect size. Before we go any further, let's take a break for reflection.

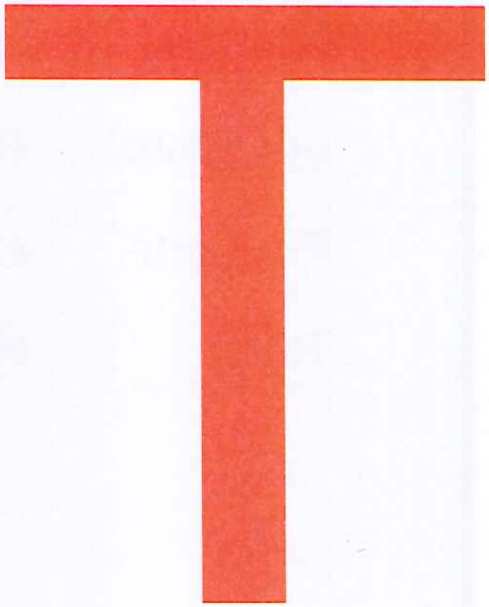
Please think about the following:
a) What new information(s) do you find surprising?
b) What kind of questions do you usually ask?

Interaction pattern: Individual work

Place: Classroom

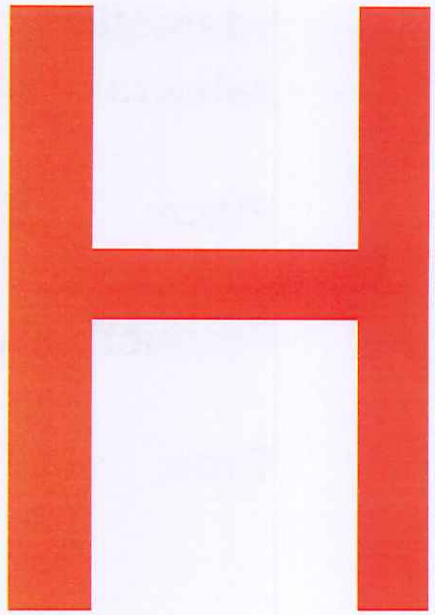
Product: Your own thoughts/notes

Time: 5 minutes



Task 4

Task:	Please read in the script U3 the text »Questions that use prior knowledge to cue cognitive interest». Create according to the samples questions for one of your courses. Don't ask questions you know the answers to!
Interaction pattern:	Individual work
Medium:	Laptop
Location:	Private
Product:	Questions for one topic of your lesson/course
Time:	Recommendation: invest max. 30 minutes



time

4 questions!

Lots of material, little time

The worldwide complaint of teachers

The modules have too much content.

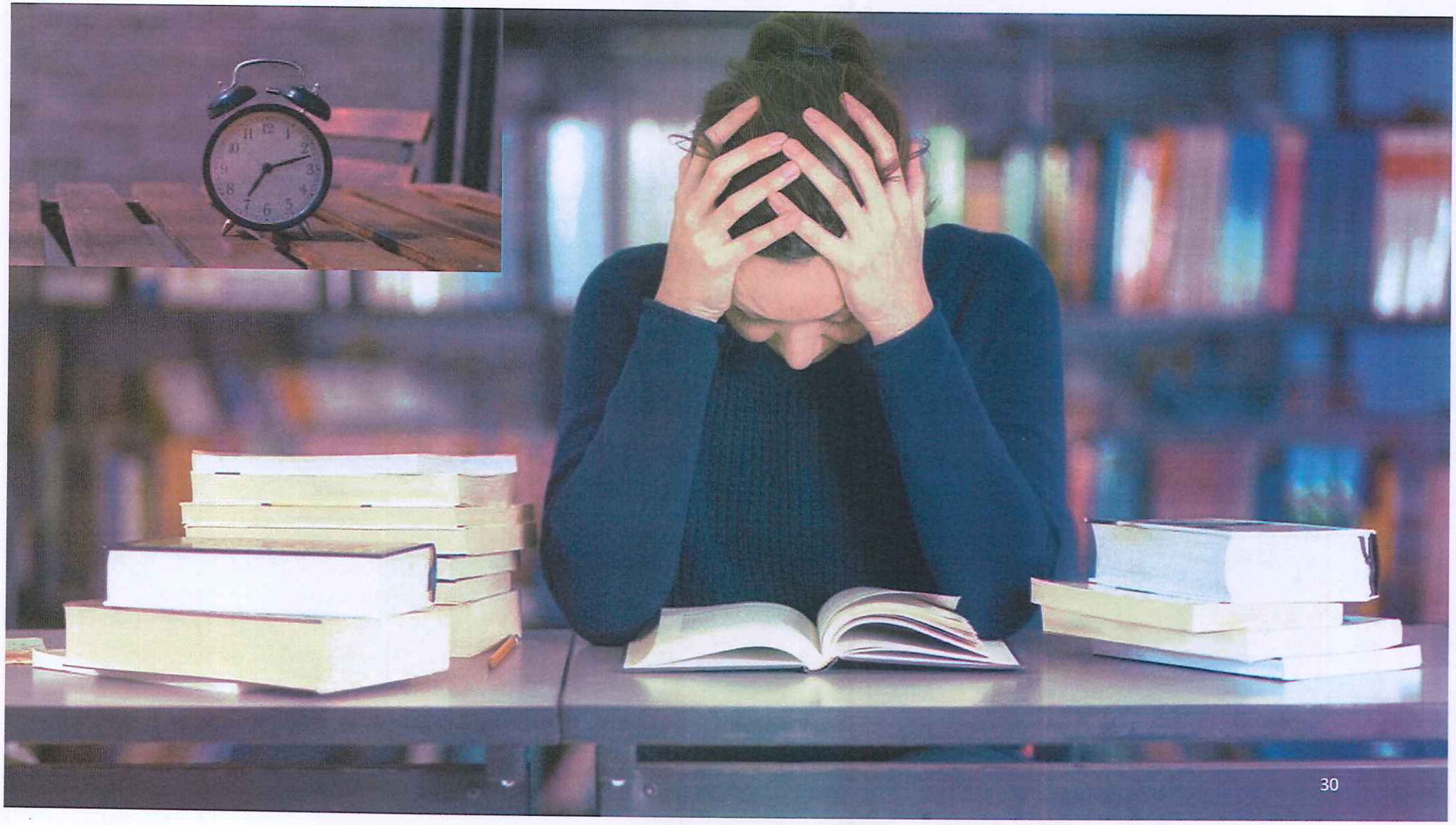
I couldn't get through the course material.

If I now also mix tasks into my lecture, I'll run out of time.

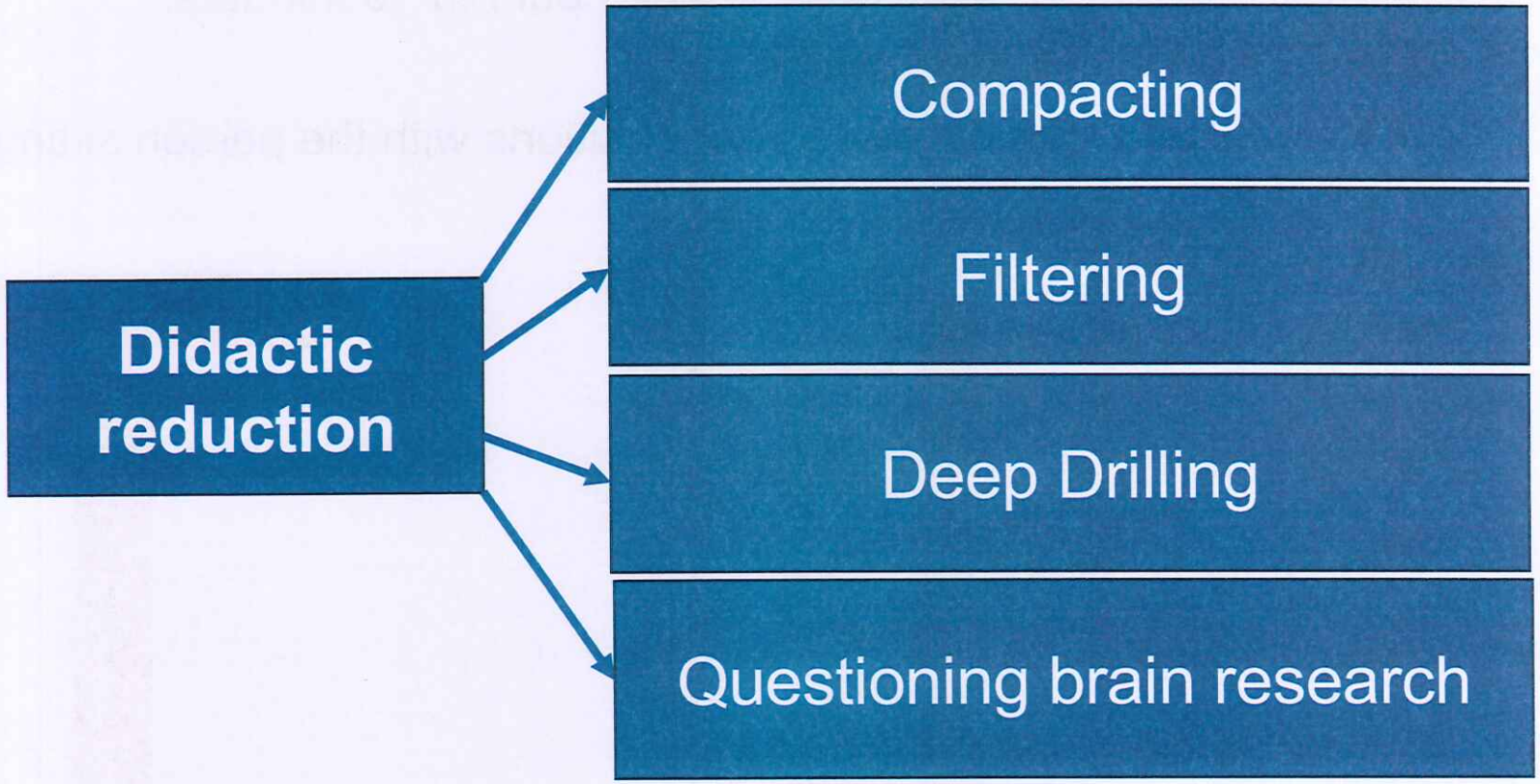
The content I teach is not complete.

With so much learning material, I am inevitably superficial.

I agree: Learning takes time, but I don't have time!



Four suggested solutions for didactic reduction



Task 5

Task: **Step 1:** Explain Hinduism (or Cricket) to a Swiss woman with three different timings: in half a day / in one hour / in 10 minutes.

Make notes for all three variants.

Step 2: Discuss and compare your solutions with the person sitting next to you.

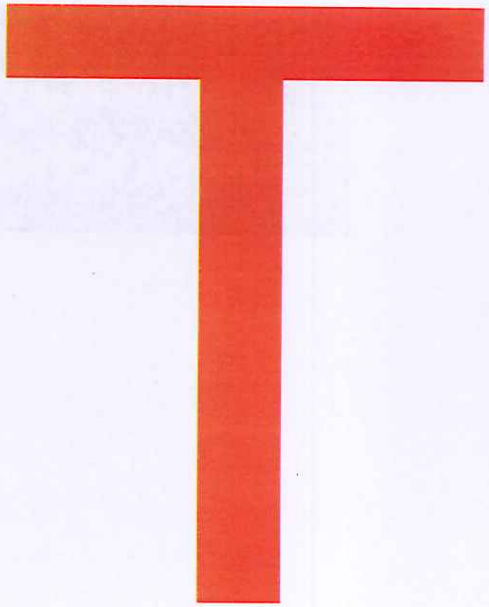
Interaction pattern: Individual work / pair work

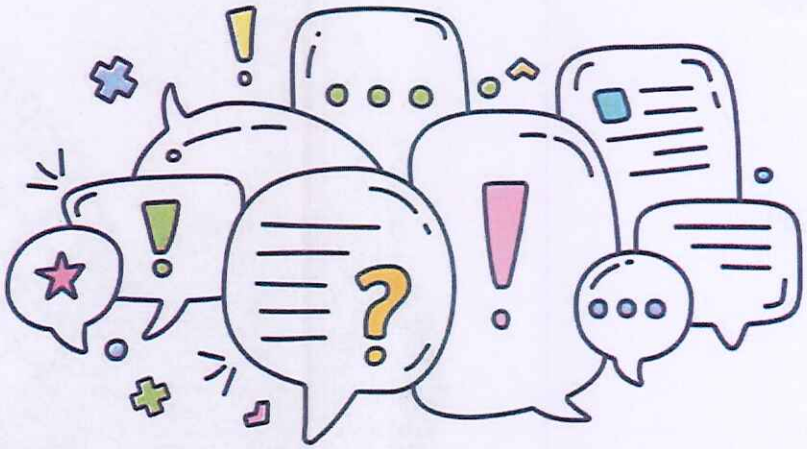
Place: Step 1: Classroom / Step 2 free

Resources: Note paper or laptop

Product: Notes, keywords

Time: Step 1: 15 min. / Step 2: 2x5 min.





LET'S TALK

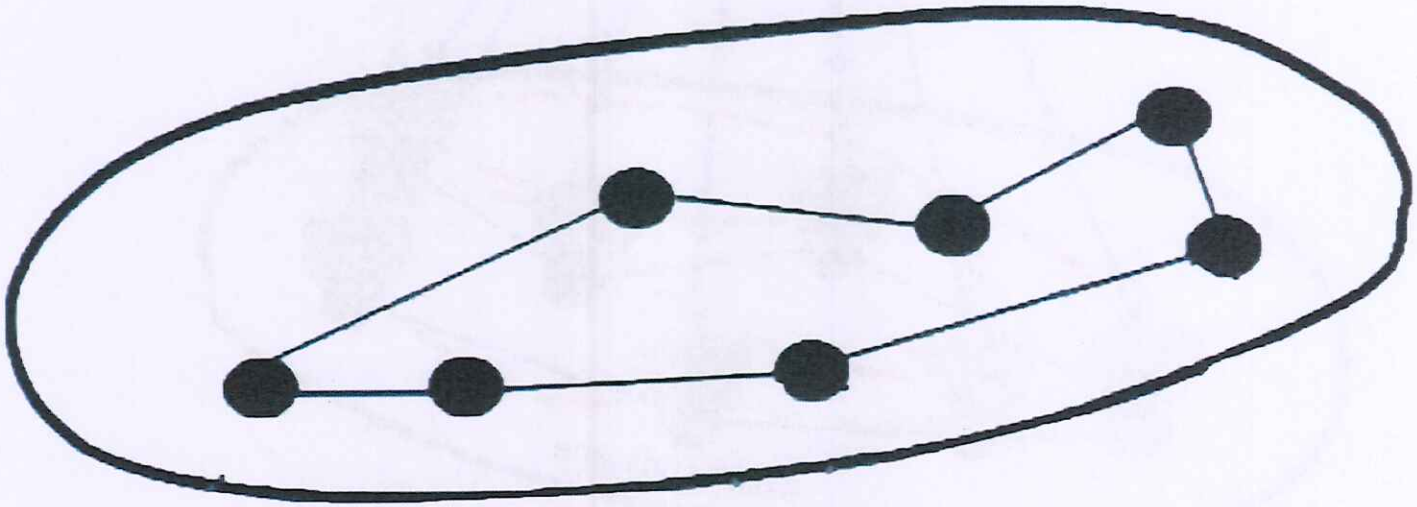
Compacting

From basic landscapes to deep drilling

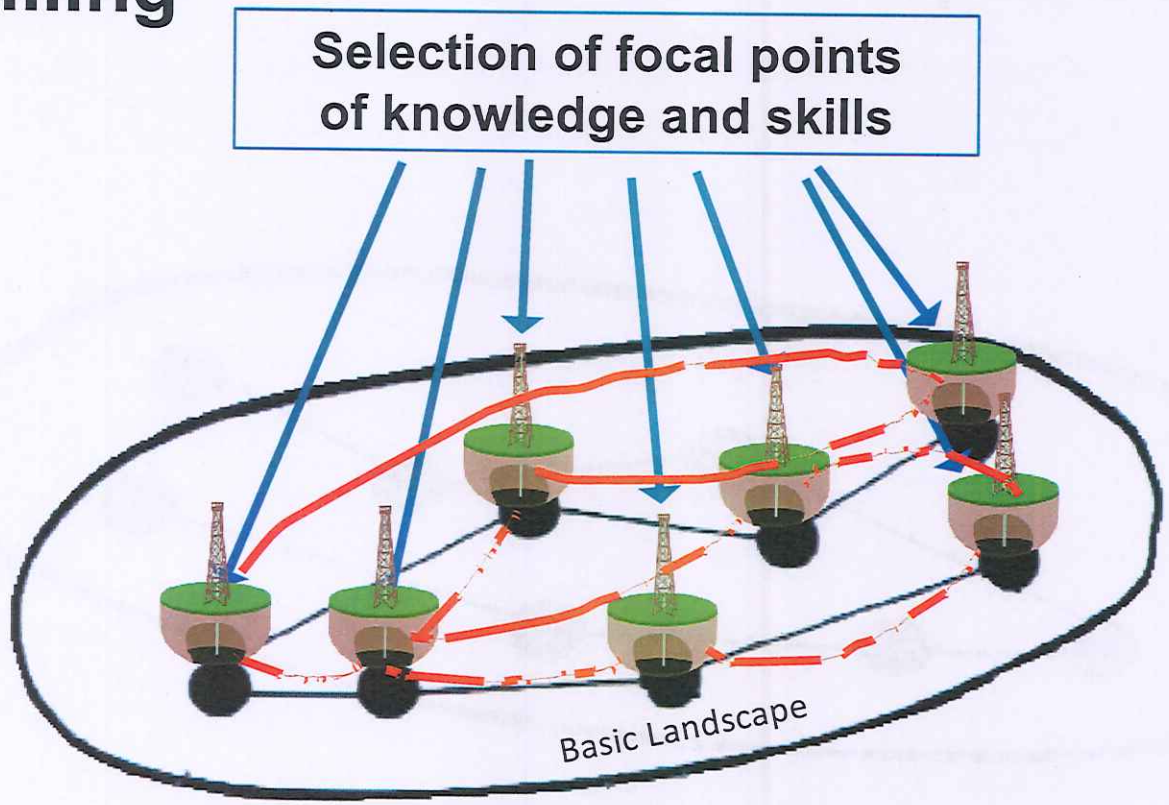
> Sieves of reduction

> Priority check

Basic landscape

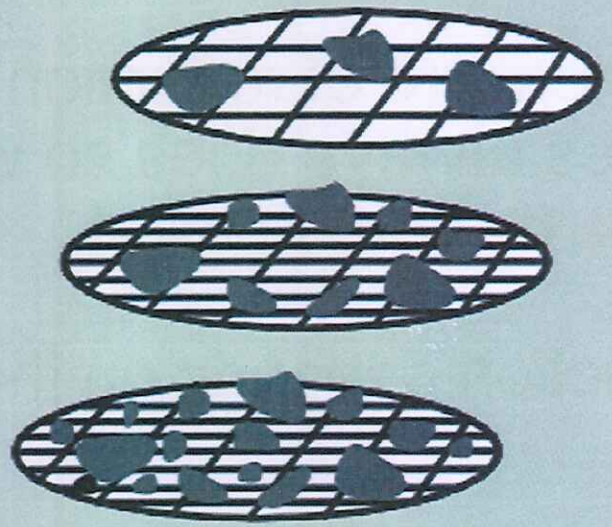


Deep drilling



Sieves of reduction

What is essential?



The sieves of reduction:
What do I "bring" into

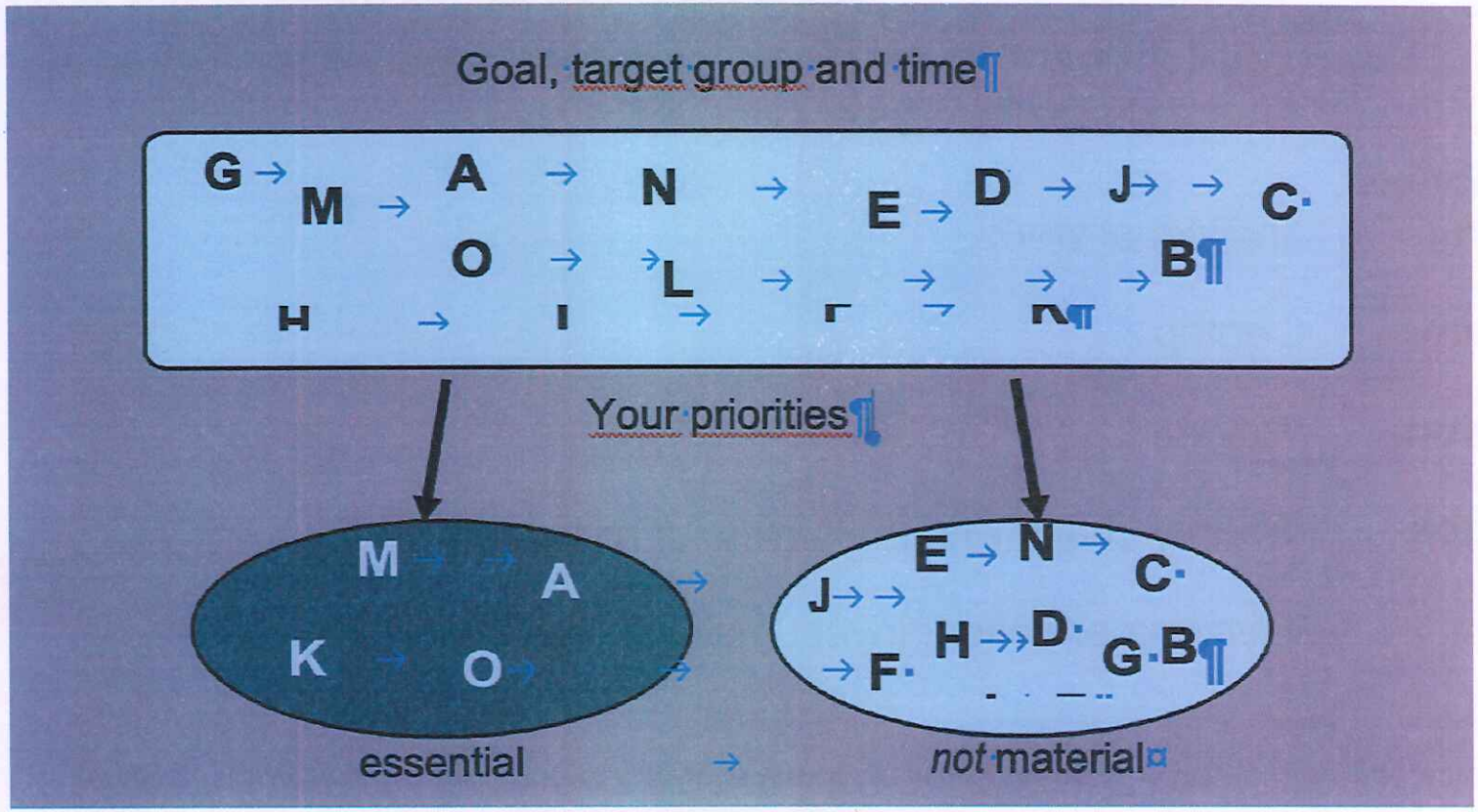
- 15 minutes,
- two hours or
- in one day?

„There is no right measure of reduction.
Anyone who reduces **always** does so with a **goal**, a **target group**, a **fixed time budget** in mind.

The degree of reduction depends on these **three factors**."

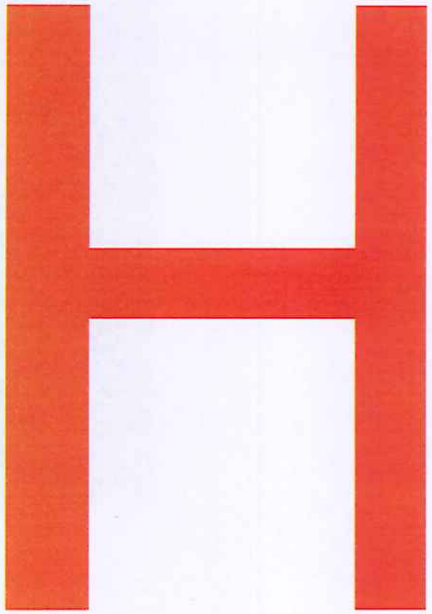
Martin Lehner, Didaktische Reduktion, Wien 2020

Priority check



Task 6

Task:	Take a look at all of your content and decide **which** of this content you consider to be essential or non-essential. Make the decision "not essential" **very consciously!**
Interaction pattern:	Individual work
Medium:	Laptop
Location:	Private
Product:	Priority check with the sieves of reduction
Time:	Recommendation: invest max. 60 minutes



Task 7

Task: Please read the text “Reduction to completeness: How the less-is-more philosophy leads to new insights” in your script.

Highlight the most important passages. Please note that highlighting should make up a **maximum of 10 percent** of the text.

After reading, you will get a mastery test for self-evaluation.

Interaction pattern: Individual work

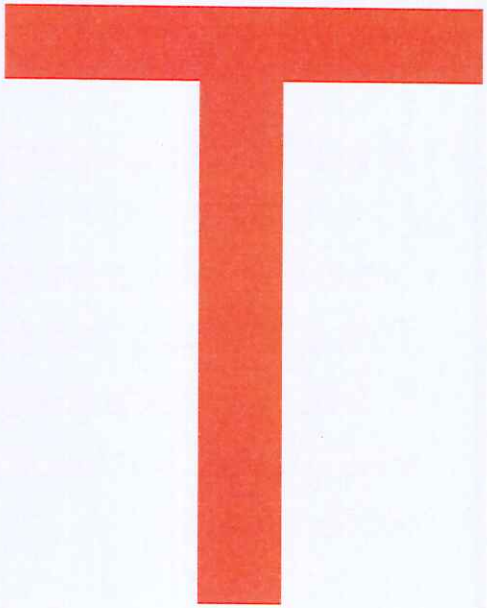
Place: Classroom

Resources: Text

Product: Mastery-Test

Time: For the reading: 15 minutes

For the mastery test: 10 minutes



Mastery Test

Meta Level

- Form of examination or assessment
- Have learners reached a certain level of understanding or proficiency?
- Often used as **formative** assessments

Formative assessment:

- Goal: To support the learning process
- Time: During the learning process
- Purpose: Feedback and improvement
- Examples: Quizzes, discussions, mid-term exams

Summative assessment:

- Goal: Review of learning success
- Time: At the end of a teaching section
- Purpose: To determine the learning success
- Examples: Final examinations, final papers, final grades

Today's goals

- **Compare** interaction patterns ✓
- **Analyse** your teacher questions ✓
- **Discribe** according to didactic reduction ✓
- **Evaluate** with a mastery test ✓

Thank you for your attention!

Didactics at the BSDU

Unit 3

Interaction Patterns
Teacher questions
Lots of material – little time

Overview Interaction Patterns

Interaction Pattern	Advantages	Disadvantages
Individual Work	• Promotes individual concentration • Encourages independent learning • Easy to differentiate	• Lack of social interaction • No peer exchange opportunities
Pair Work	• Intense exchange • Enhances social skills • Mutual support	• Dependence on partner • Potential dominance of one partner
Group Work	• Diverse perspectives • Promotes teamwork and cooperation • Develops communication skills	• Varying levels of engagement • Possible conflicts within the group
Whole-Class Discussion	• Exchange of ideas with the entire class • Develops public speaking and argumentation skills	• Lower participation from some students • Risk of teacher monologues
Discussion Circles	• Structured exchange in a small group • Encourages active participation and listening	• Time-consuming • Not all students may have equal speaking opportunities
Learning Stations / Rotations	• Self-directed learning • Variety of tasks • Freedom of movement	• Higher organizational effort • Possible restlessness due to movement
Debate	• Promotes critical thinking and argumentation skills • Develops rhetorical abilities	• Potentially time-consuming • Possible dominance of stronger speakers
Project Work	• Long-term collaboration • In-depth exploration of a topic • Encourages initiative and responsibility	• High organizational effort • Varying contributions from participants

Questions that use prior knowledge to cue cognitive interest

Language Arts	Math	Science	Social Science
You're all familiar with verbs. But did you know some verbs are weak and others are strong…and that good writers use strong verbs to 'power up' their sentences?	You've likely heard mathematical predictions, for example, that a sports team has a 60% chance to win a game. But what does this really mean?	Based on what you've learned about the five animal groups, which do you think are best adapted to cold climates?	You've all used money to buy things. But have you ever wondered how does money *work*? Why do we accept a piece of paper in exchange for goods and services?
Have you ever finished reading something and realized you didn't absorb much of it? How can we read closely so this doesn't happen?	We've used linear equations to depict consistent proportional relationships. But what if relationships aren't consistently proportional?	You've all seen living things grow. What do you think may be going on deep inside them to make them grow?	Have you heard people criticize the president and other elected leaders? Did you know that in many nations such criticism is illegal? How did we get this right?
Have you notices how people can view the same event quite differently? During this unit, we'll learn to appreciate how writers' different cultures and experiences influence their views.	How can we use what we've learned about mathematical modelling to predict the amount of water needed to support population growth in arid areas, like in Western United States?	If you've been near a beach in the summer, you've likely experienced daytime sea breezes and nighttime land breezes. What scientific principles might explain these phenomena?	We've seen how Rome struggled to maintain an empire spread across vast bodies of water and land and distinctly different cultures. What might be different for an empire, such as the Chinese, as they spread into more geographically and culturally cohesive regions?

Reference: Goodwin, B., Rouleau, K. (2023). The new classroom instruction that works, 19-20, McRel.

Reduction to completeness: How the less-is-more philosophy leads to new insights

"Well, less is more, Lucrezia: I am judged", says Robert BROWNING's poem "Andrea del Sarto" from 1855. However, the origin of this winged phrase is not exactly clear. As early as the 6th century BC, the Chinese scholar LAO TSE said: "There is wealth in simplicity and refinement." The less-is-more quote is often attributed to the architect Mies van der ROHE. Thanks to him, this saying has acquired the significance it has today in design and architecture.

The "less is more" philosophy can be found in various areas of life. The sentence "Wisdom is the art of recognising what must be overlooked" is attributed to the pragmatic philosopher William JAMES. Fashion designer Coco CHANEL puts it like this: "The art of living is the art of making the right choices, starting with speech and ending with the neckline."

The less close a person is to the topic in question, the easier it is to leave it out. I remember a seminar in which a young employee from a Berlin Senate department talked about her communication tasks. She had to present certain projects of her senate department to the public- in radio interviews she had 60 seconds to do this, and this was impossible. We asked her for an example and she began to tell us: "Well, the State Secretary had the idea of doing this and that. A working group was set up. In particular, it had to be clarified whether it should go in direction A or B..."

The 60 seconds were quickly over and the young employee felt vindicated. You can't "get that across" in one minute. However, the other participants didn't see it that way. For them, the message could certainly be summarised: "Project X starts on the 3rd of next month, it's about Y, and if you want more information, please contact Z." In their opinion, everything else was an afterthought. Who had initiated the project, when, with whom and under what circumstances was of no interest to them.

This approach can be illustrated using the example of a bouquet of flowers. If you want to bring your loved one flowers, you don't pick the whole garden, but select a few flowers- usually the most beautiful or most striking. The flowers are then decorated with some greenery and tastefully arranged. Walter UMSTÄTTER calls this form of didactic reduction "biological learning".

The following now applies to every topic: the content can be offered in varying degrees of concentration. Once the learning objectives, time budget and target group have been determined, the right "dose" of content must be found. The "dose" also changes under different framework conditions. Basically, it is a matter of concentrating content to varying degrees and selecting the essential content and statements.

Your task

The bouquet technique can help you to implement the less-is-more idea for your content.
Try tying a bouquet of flowers with your content.
Which flowers do you pick, why these in particular? And how do you put them together?

Those who follow the motto "less is more" not only bundle their content, but also reflect on it. Selecting content is a demanding activity that requires professional expertise and at the same time advances it. "I can only really say what is important after I have taught the topic two or three times," said a university lecturer in a didactics seminar. However, this limits the less-is-more to the selection of content based on the highest level of expertise. I would argue in favour of using this technique with advanced learners as well in order to think through a topic or subject. Less-is-more is a friendly and at the same time emphatic invitation to form a well-founded opinion.

At this point, I would like to emphasise that good teaching does not only consist of "omission". Although "thoroughness before completeness" applies, it may well be necessary in learning processes to approach the ideal of completeness. If you are a biologist studying the world of butterflies, it will be helpful to know as many of them as possible. And if you want to play basketball, you can't be satisfied with just three selected rules of the game. These examples in particular show that less-is-more is a didactic principle that is used for teaching and learning. With less-is-more, you can definitely move in the direction of completeness.

Omission and completeness are not mutually exclusive, as Klaus W. DÖRING has pointed out with the seemingly paradoxical formulation of "reduction to completeness". Those who select the essential aspects of a topic can do so in such a way that the topic is presented as a whole. In addition, exemplary examples can be defined in such a way that they represent the whole in detail. A case for the detective Maurice Laice, created by the French crime writer Chantal PELLETIER, whom his boss only calls "More is less".

LEHNER Martin: «Viel Stoff, wenig Zeit», Bern-Stuttgart-Wien 2006, haupt, translated by DeepL
I

10 Multiple-Choice Questions:

1. **Where does the quote "Well, less is more, Lucrezia: I am judged" originate from?**
   - a) William James
   - b) Lao Tse
   - c) Robert Browning
   - d) Mies van der Rohe
2. **Who is often credited with popularizing the "less is more" principle in design and architecture?**
   - a) William James
   - b) Lao Tse
   - c) Robert Browning
   - d) Mies van der Rohe
3. **What did the Chinese scholar Lao Tse say about simplicity?**
   - a) "Less is more"
   - b) "Simplicity and refinement are wealth"
   - c) "Life is the art of proper omission"
   - d) "Completeness is in reduction"
4. **Which phrase is attributed to the pragmatic philosopher William James?**
   - a) "Life is the art of proper omission"
   - b) "Simplicity and refinement are wealth"
   - c) "Less is more"
   - d) "Reduction to completeness"
5. **What was the main point made by the young employee from the Berlin Senate Department?**
   - a) It is easy to convey project details in 60 seconds
   - b) Radio interviews are not an effective way to communicate
   - c) It is impossible to present her department's projects in 60 seconds
   - d) Project details are not important for the public
6. **What example is given to explain the "bouquet technique"?**
   - a) Arranging a detailed report
   - b) Picking the whole garden for flowers
   - c) Selecting a few beautiful and striking flowers
   - d) Choosing random flowers and arranging them
7. **What term does Walter Umstätter use to describe didactic reduction?**
   - a) Less-is-more learning
   - b) Biological learning
   - c) Philosophical learning
   - d) Exemplary learning
8. **According to the text, what is a critical aspect of teaching effectively?**
   - a) Covering as much content as possible
   - b) Using complex language
   - c) Selecting and concentrating on the essential points
   - d) Avoiding repetition
9. **What does the university lecturer say about knowing what is important in a topic?**
   - a) It is easy to identify from the start
   - b) It becomes clear after teaching the topic two or three times
   - c) It is not necessary for effective teaching
   - d) It can be done without deep expertise
10. **How does the text describe the concept of "reduction to completeness"?**
    - a) Focusing on minor details
    - b) Ignoring the main points
    - c) Selecting key aspects to represent the whole
    - d) Avoiding simplification

Answers:

1. c) Robert Browning
2. d) Mies van der Rohe
3. b) "Simplicity and refinement are wealth"
4. a) "Life is the art of proper omission"
5. c) It is impossible to present her department's projects in 60 seconds
6. c) Selecting a few beautiful and striking flowers
7. b) Biological learning
8. c) Selecting and concentrating on the essential points
9. b) It becomes clear after teaching the topic two or three times
10. c) Selecting key aspects to represent the whole

Reduction to completeness:
How the "less-is-more philosophy" leads to new insights

Answers

Multiple-Choice Questions:

1. Where does the quote "Well, less is more, Lucrezia: I am judged" originate from?
   - **Answer**: c) Robert Browning

2. What significance did Mies van der Rohe attribute to the "less is more" principle?
   - **Answer**: b) Design and architecture

3. Who said: "Life is the art of proper omission, starting with speech and ending with the neckline"?
   - **Answer**: b) Coco Chanel

4. What is the didactic reduction called by Walter Umstätter?
   - **Answer**: b) Biological learning

5. Who coined the term "reduction to completeness"?
   - **Answer**: c) Klaus W. Döring

Open Questions:

6. What challenge did the young employee from the Berlin Senate Department face regarding her communication tasks?
   - **Answer**: She had difficulty conveying the details of her Senate department's projects in 60-second radio interviews, believing it was impossible to cover the necessary information in such a short time.

7. Explain the "bouquet technique" in the context of the text.
   - **Answer**: The "bouquet technique" involves selecting the most important and striking elements of a topic, much like choosing the best flowers for a bouquet. This method helps to focus on the essential points and present them in an appealing and concise way.

8. What is the central idea of the "less is more" philosophy, and in which areas is it applied?
   - **Answer**: The central idea of the "less is more" philosophy is that simplicity and conciseness lead to greater clarity and impact. This principle is applied in various areas including design, architecture, communication, education, and even fashion.

9. How is the principle "less is more" applied in teaching, according to a university lecturer?
   - **Answer**: According to the university lecturer, the principle is applied by selecting and focusing on the most important aspects of a topic. It requires deep understanding and expertise to identify what is essential, which improves teaching and helps students grasp the core concepts more effectively.

10. How does the text describe the relationship between "omission" and "completeness"?
    - **Answer**: The text describes the relationship as complementary rather than contradictory. Effective omission can lead to a more complete understanding of a topic by focusing on the most representative and significant elements, a concept referred to as the "reduction to completeness" by Klaus W. Döring.